



**RISK
MANAGEMENT**
Consulting Health Scientists

2019 Yuma Pacific Southwest
AIHA meeting in San Diego
January 23-25, 2019

Protecting Worker Health and Total Worker Health: A Vision for our Profession



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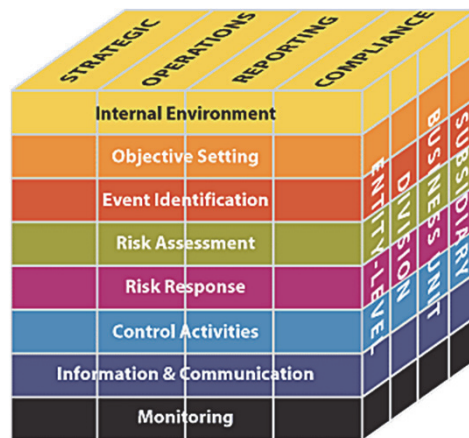
**Confronting Risk and Making a Choice:
Do I Gain or Do I Lose?
Do I Look Back or Do I Look Forward?
Do I See New Horizons and Opportunities?
Do I Feel Discomfort and Fear?**



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Enterprise Risk Management (ERM) An AIHA “BoK” Initiative



COSO's Enterprise Risk Management Framework
Committee of Sponsoring Organizations of the Treadway Commission



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Value of Our Profession



“With regard to our Business Enterprise,
HSE is necessary, but the value is razor thin.”
– Anonymous Client



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Key Constituents of Business

- Customers
- Workers
- Shareholders

What is the Corporate Priority? (Competition, Issues, Stresses bring Tradeoffs)

Why (Should) Shareholders Come First



1916 Model T Ford

"A business corporation is **organized primarily for the profit of the stockholders**, and the discretion of the directors is to be exercised in the choice of means to attain that end, and does not extend to the reduction of profits or the nondistribution of profits among stockholders in order to benefit the public, making the profits of the stockholders incidental thereto."

204 Mich. 459
170 N.W. 668
DODGE et al.
v.
FORD MOTOR CO. et al.
No. 47
Supreme Court of Michigan
Feb. 7, 1919.



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Have Modern Workers become Modern Slaves?

What are the facts?

What are the perceptions?

What are the politics?

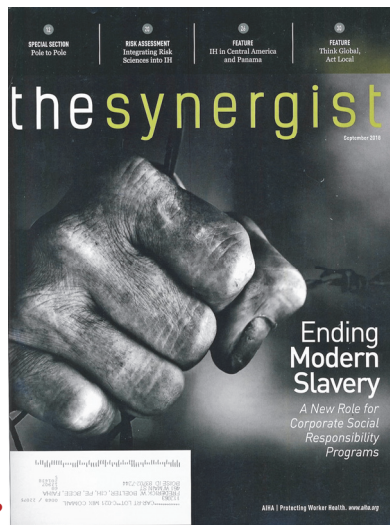
What needs to be changed?

How can changes be made?

Is MAGA working?

Are trade wars working?

For whom are things working?



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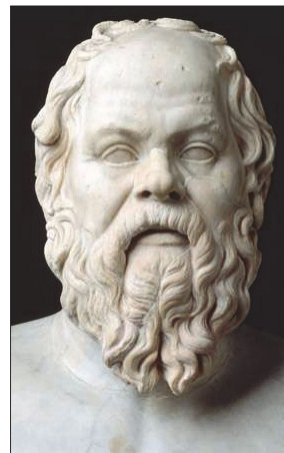
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“The beginning of
wisdom is the
definition of terms.”



Socrates
470–399 B.C.E.



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Merriam-Webster

Protecting To cover or shield from exposure, injury, damage, or destruction.

Worker One that works especially at manual or industrial labor or with a particular material.

Health The condition of being sound in body, mind, or spirit.
A condition in which someone or something is thriving or doing well.



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What is the metric and goal?

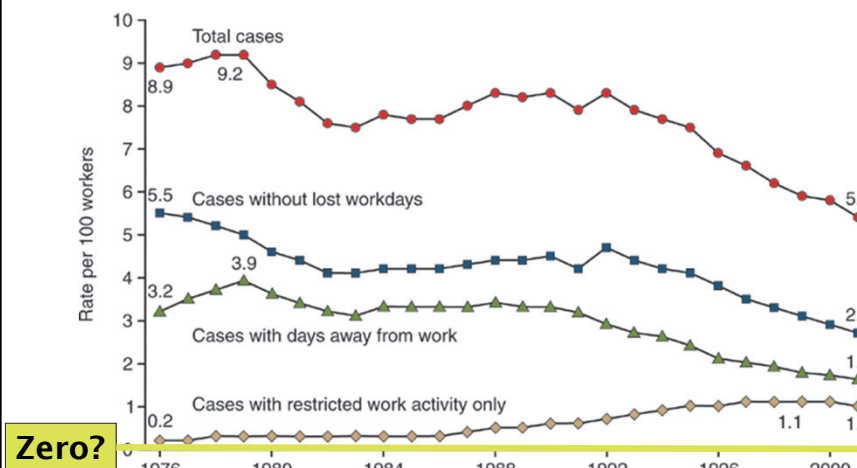


Figure 2-70. Incidence rates of injury cases by type of case in private industry, 1976-2001

NIOSH Publication Number 2004-146 Worker Health Chartbook 2004



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Worker/Employee/Workplace/Place of Work



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We all have reasons for why Health matters

Usually personal in nature

I want to be vibrant in my old age

I want to be
an energetic
mother /
father

I want to
look and
feel better

I don't want
to be sick!

I want to provide for myself and family to the best of my capabilities



Johnson & Johnson GLOBAL HEALTH SERVICES

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What does good Health mean to the business?

It matters if it links to performance and the bottom line!

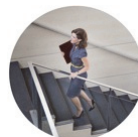
I want my employees to be productive and "present"



We want to attract and retain top talent



We need the business to be innovative



We need our employees to give us a competitive edge

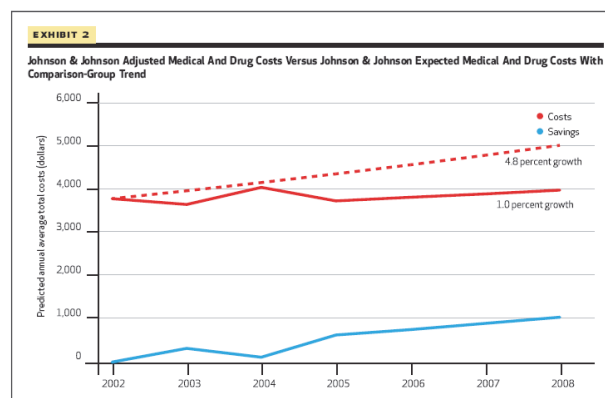


JOHNSON & JOHNSON GLOBAL HEALTH SERVICES

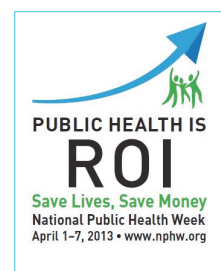
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A Culture of Health while Speaking the Language of Business

A Sustainable approach to Bend the Health Care Cost Curve



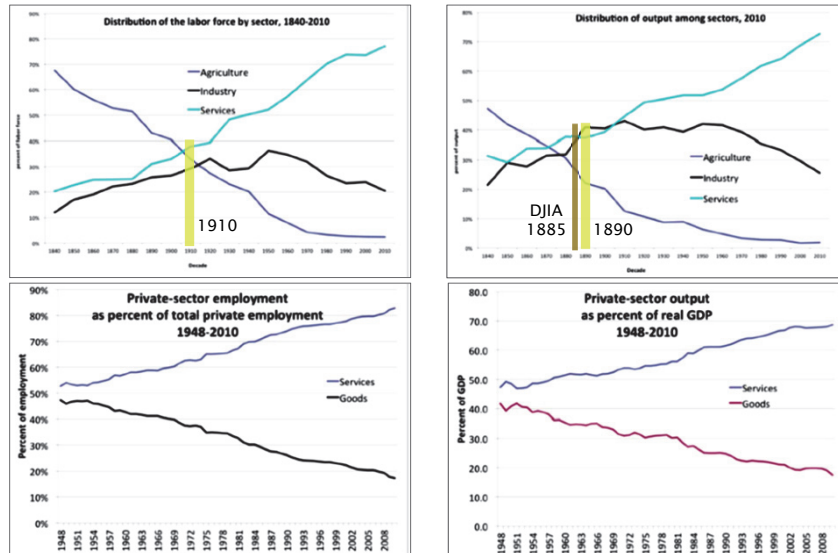
Average Savings 2002-2008 = \$565/employee/year
Estimated ROI: \$1.88 - \$3.92 per \$1.00 invested



JOHNSON & JOHNSON GLOBAL HEALTH SERVICES

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History and the Long-Run



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Productivity and Wages



Samuel Slater
(1768 to 1835)

Father of the American
Industrial Revolution

(Also my great³ grandfather)



Frederick Winslow Taylor
(1856 to 1915)

Father of Industrial Engineering

Father of the Scientific management
& Efficiency Movement



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Revolutions

Health and safety is integral to **revolutions**.
 Who benefits from **revolutions**?
 Does health and quality of life always increase?
 Do risks always go down?

- 1700-1800 1st Industrial Revolution: Water/Steam (Samuel Slater)
- 1870-1941 2nd Industrial Revolution: Electricity (Fred Taylor)
- 1980's-?? 3rd Industrial Revolution: Computers (Fred Boelter)
- 2016-?? 4th Industrial Revolution: Robotics (Any of you?)

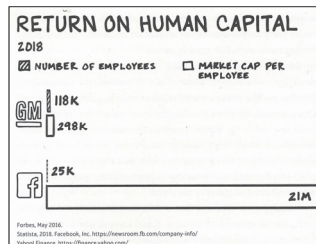
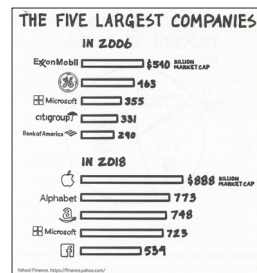


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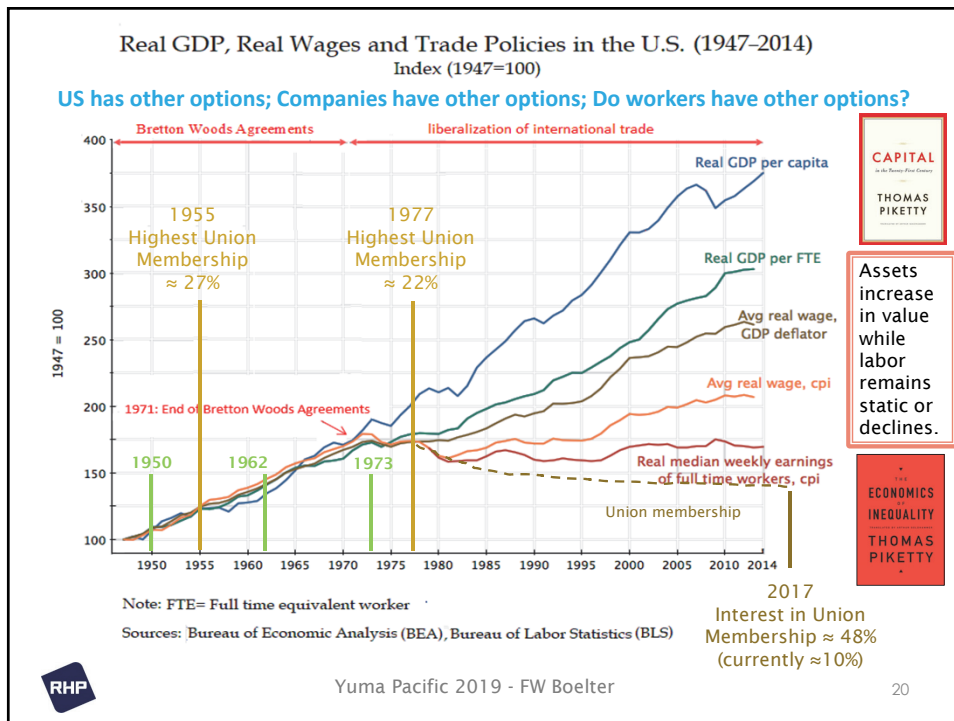
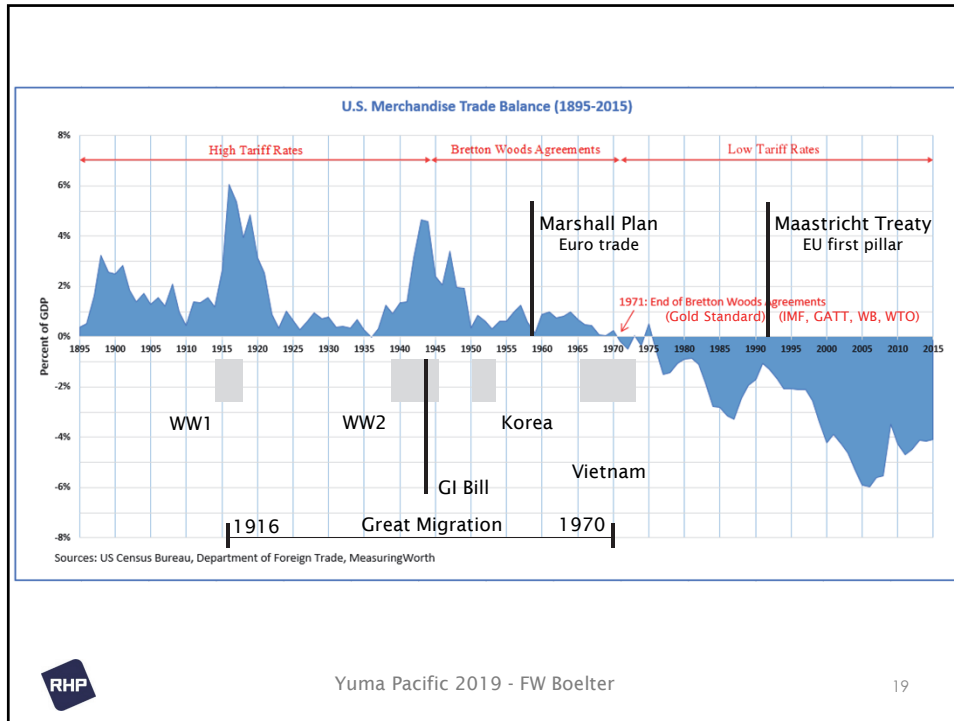
Antitrust Laws

1. Sherman Act, 1890
2. Objectives are to:
 - a. protect the process of competition for the benefit of consumers,
 - b. make sure there are strong incentives for businesses to operate efficiently
 - c. keep prices down
 - d. keep quality up
3. Outlaws "every contract, combination, or conspiracy in restraint of trade."
4. Workers are not mentioned.
5. Assumption has been more new jobs will be created than are lost.
6. Laws and regulations are lagging in the Fourth Industrial Revolution.



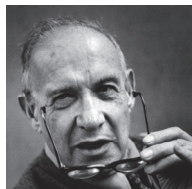
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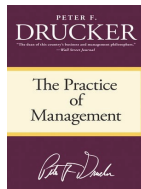


Dumbest Idea in the World: Maximizing Shareholder Value

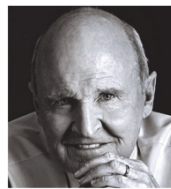
"There is only one valid definition of a business purpose: to create a customer." (1973)



Peter Drucker
(1909 to 2005)
Management consultant,
educator, and author



"Shareholder value is the dumbest idea in the world. Shareholder value is a result, not a strategy." (3/12/2009)



Jack Welch
(Born 1935)
CEO of General Electric
between 1981 and 2001



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Costs of Steel and Aluminum Tariffs

Over 400,000 U.S. jobs lost¹

GDP decline of 0.2%
(\$36 billion)¹

16 U.S. jobs lost for every 1 gained¹

Decline of 2% in all imports
and 1% in all exports¹

Costs to U.S. Consumers: \$7.5 billion a year, before retaliation from the European Union, Mexico and Canada²

Sources: 1)Peterson Institute for International Economics & Trade Partnership Worldwide, 2018; 2) American Action Forum, 2018



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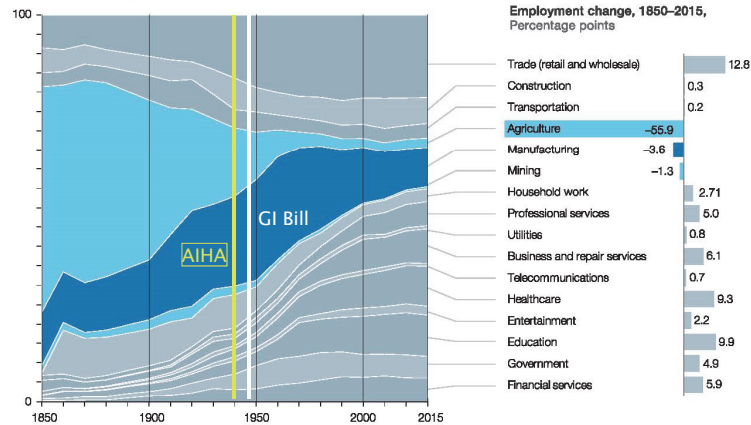
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Exhibit 2

History shows that technology has created large employment and sector shifts, but also creates new jobs.

And demands new skills!

Share of total employment by sector in the United States, 1850–2015, % of jobs



McKinsey&Company | Source: IPUMS USA 2017; US Bureau of Labor Statistics; McKinsey Global Institute analysis

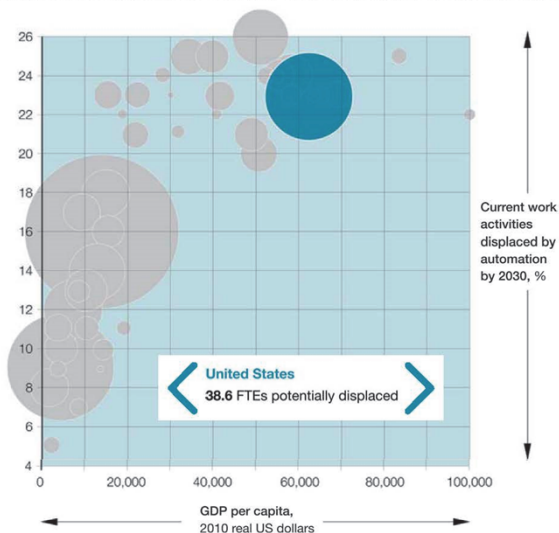


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Scenarios for labor displacement by automation

Midpoint automation adoption. Full-time equivalents (FTEs) potentially displaced by 2030, millions



NOTE: These estimates for automation displacement are based on scenarios for automation adoption and should not be interpreted as predictions.

McKinsey&Company | Source: McKinsey Global Institute analysis



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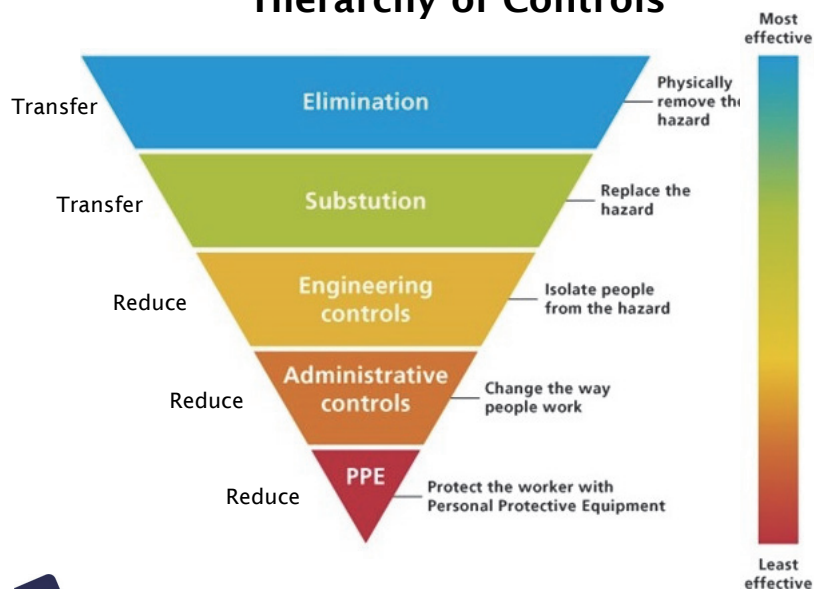
Technology Displacement



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Our Professional Role Hierarchy of Controls



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**Ya know, not
having a job is
not healthy!!**

**How about
Universal Basic Income?**

Some say 'free money'
Others say 'dividend'

- Duty
- Dignity
- Incentives
- Responsibility
- Purposefulness



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Automation and UBI

“There is a pretty good chance we end up with a universal basic income, or something like that, due to automation.”



Elon Reeve Musk
(born 1971)
Technology entrepreneur,
investor, and engineer
CNBC Interview (4Nov2018)



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UBI and Future Projects

“Adopting a universal basic income for all people can help society think creatively with new ideas, develop new industries, and free-up people to work on important future projects.”



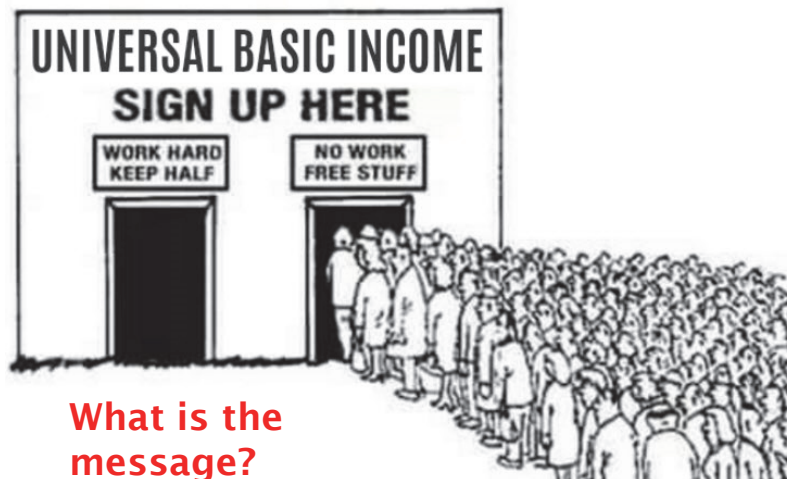
Ray Kurzweil
(born 1932)
Business Futurist
Letter from Ray (May 2018)



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One Perception of UBI



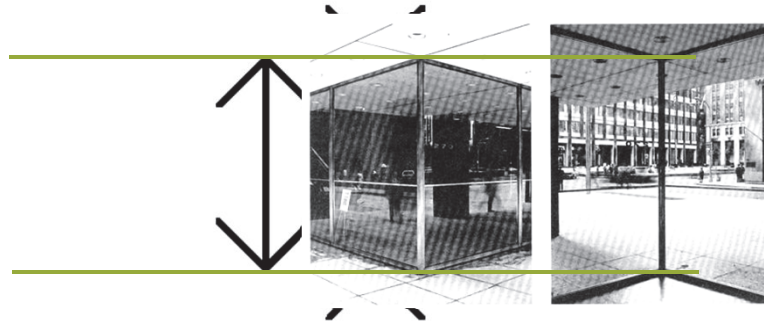
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Speaking of Perception

Müller-Lyer illusion (1889)

Which vertical line is longer?



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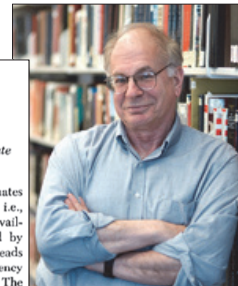
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What Matters is What People Feel Heuristic and Biases (1973)

Amos Tversky
Cognitive Psychologist



Daniel Kahneman
Psychologist



Availability: A Heuristic for Judging Frequency and Probability^{1,2}

AMOS TVERSKY AND DANIEL KAHNEMAN
The Hebrew University of Jerusalem and the Oregon Research Institute

This paper explores a judgmental heuristic in which a person evaluates the frequency of classes or the probability of events by availability, i.e., by the ease with which relevant instances come to mind. In general, availability is correlated with ecological frequency, but it is also affected by other factors. Consequently, the reliance on the availability heuristic leads to systematic biases. Such biases are demonstrated in the judged frequency of classes of words, of combinatorial outcomes, and of repeated events. The phenomenon of illusory correlation is explained as an availability bias. The effects of the availability of incidents and scenarios on subjective probability are discussed.

COGNITIVE PSYCHOLOGY 5, 207-232 (1973)



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T&K Calculations

Anchoring and adjustment heuristic

Two calculations – 5 seconds each

First sequence

Second sequence



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T&K Problem A & B

Isolation Effect

Problem A: In addition to whatever you own, you have been given \$1,000. You are now required to choose between the following options:

Option 1: A 50% chance to win \$1,000

Option 2: A gift of \$500

The probability outcomes are identical

Problem B: In addition to whatever you own, you have been given \$2,000. You are now required to choose between the following options:

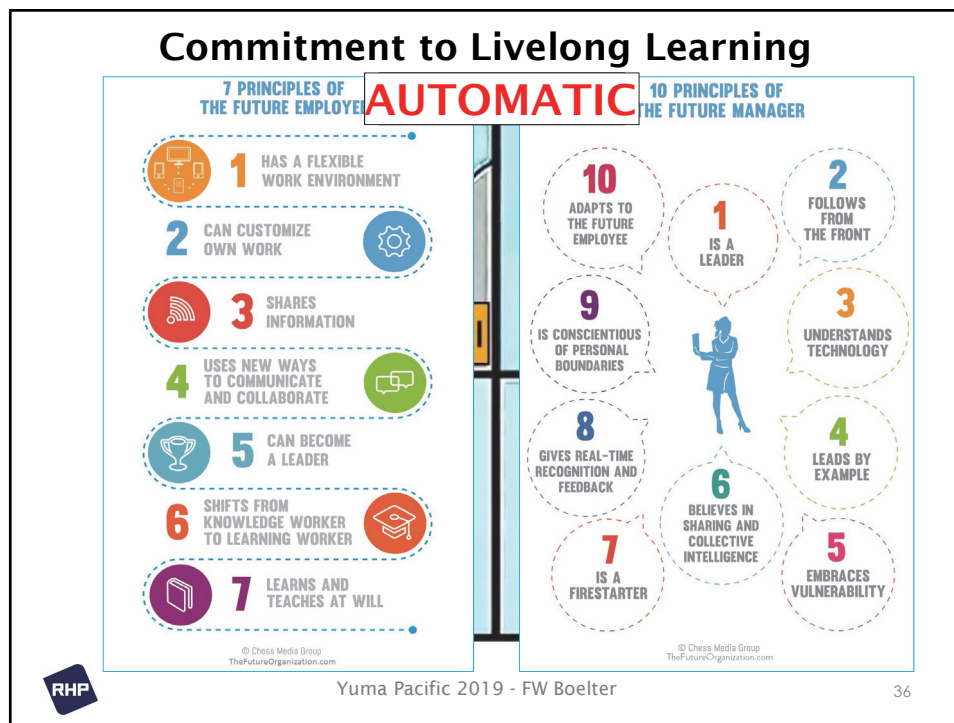
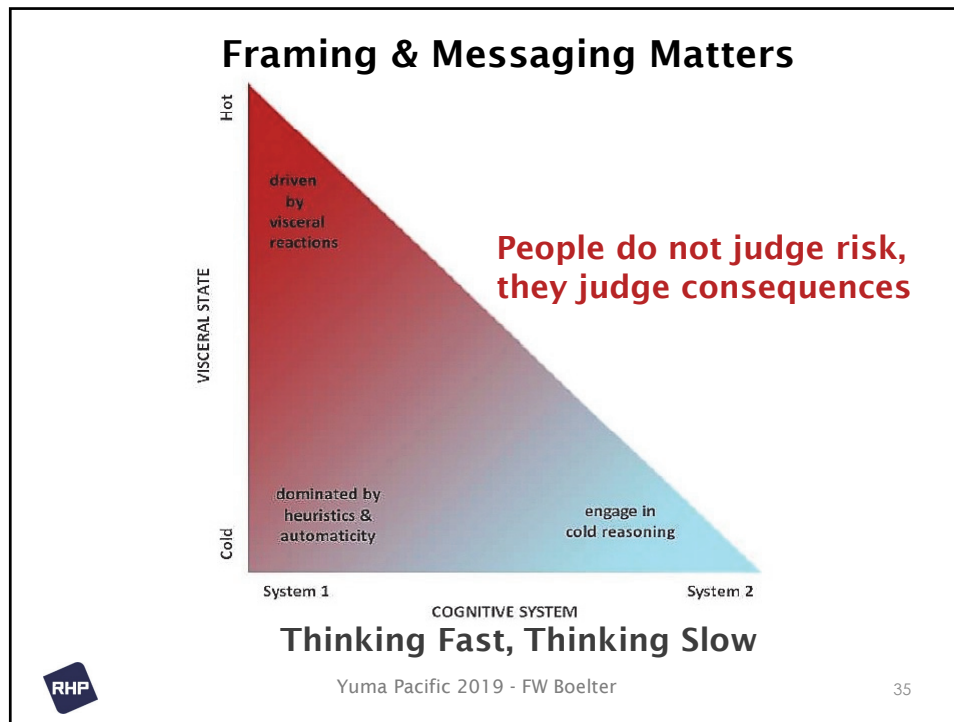
Option 3: A 50% chance to lose \$1,000

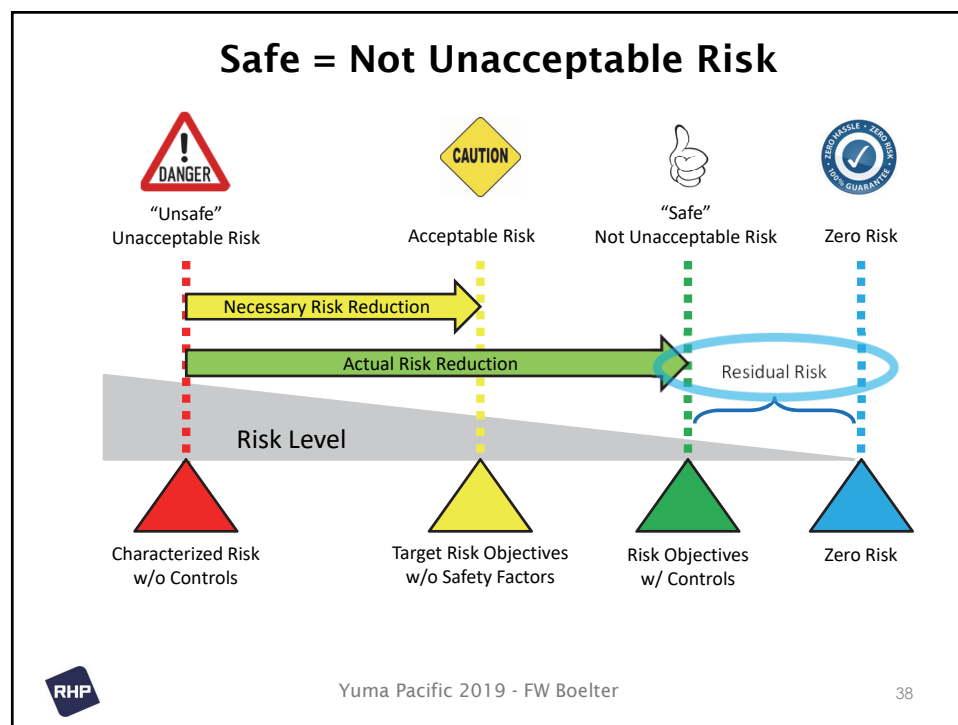
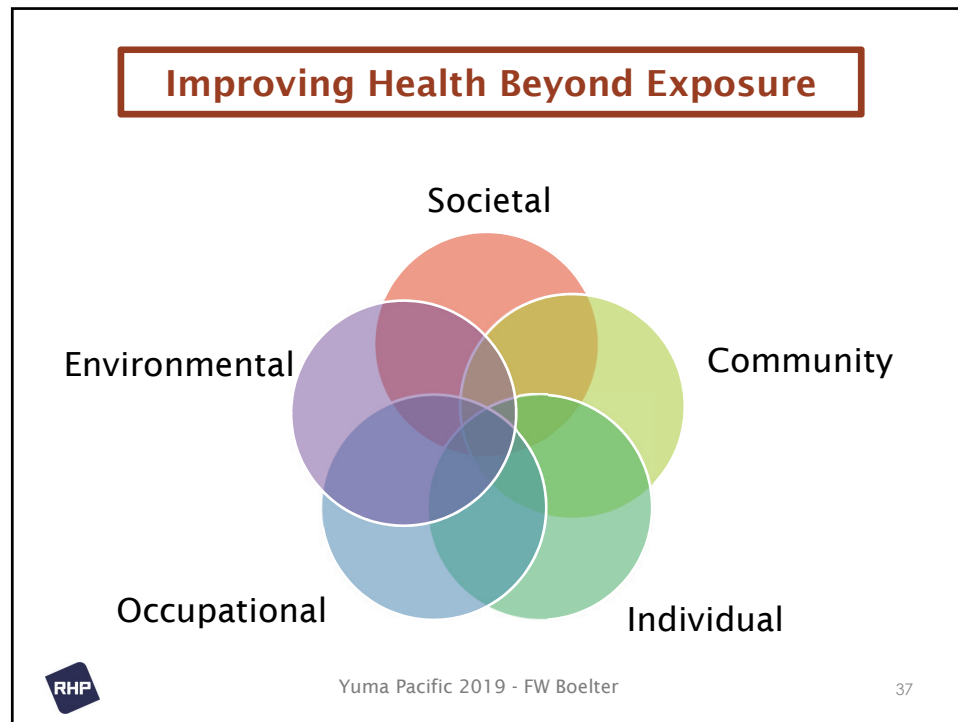
Option 4: A sure loss of \$500



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Risk Science Exposure Science Health Science



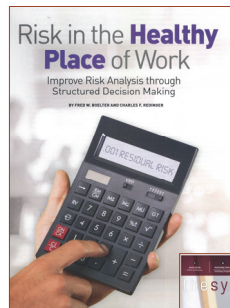
RISK SCIENCE

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Risk Analysis and Decision-Making

1. **Define the problem.** What decision has to be made?
2. **Define objectives.** Objectives should be measurable.
3. **Define alternatives.** What are the range of permissible options?
4. **Analyze consequences.** What are the consequences of different management actions?
5. **Analyze tradeoffs.** In most complex decisions, the best we can do is choose intelligently between less-than-perfect alternatives.
6. **Acknowledge uncertainty.** Confront uncertainty their possible consequences.
7. **Understand risk tolerance.** Be more objectives driven, transparent, and defensible.
8. **Sequence linked decisions.** Isolate and resolve the near-term issues. Gather for the future.



December 2018

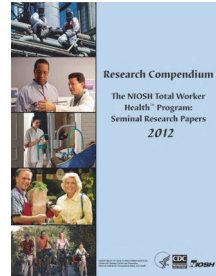


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NIOSH: Total Worker Health AIHA: Protecting Worker Health

1. **Expands** beyond a traditional and historical role of assessing “exposure”.
2. **Engages** traditional occupational safety and health protection programs designed to protect workers from harms that arise from work itself.
3. **Recognizes** work is a social determinant of health; job-related factors such as wages, hours of work, workload and stress levels, interactions with coworkers and supervisors, access to paid leave, and health-promoting workplaces all can have an important impact on the well-being of workers, their families, and their communities.
4. **Beyond** any regulation, consensus standard, and policy.



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Engagement is Key

“If we get health right,
everything else
will follow.”

RISK = HAZARD x EXPOSURE
ENGAGEMENT

Warner Lecture at the 2015 IOHA/BOHS
Conference in London England



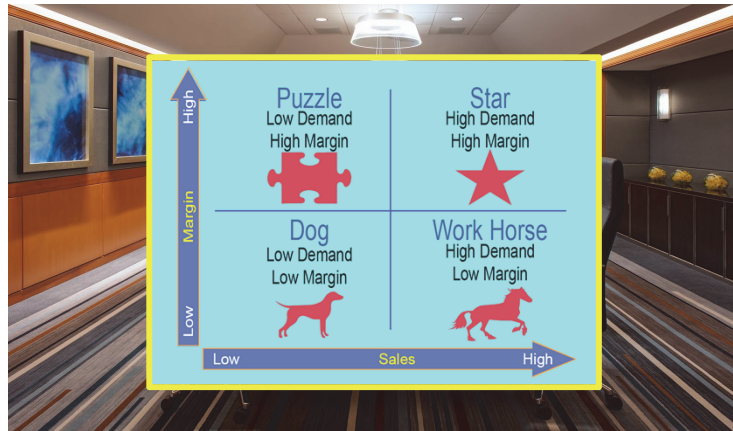
Dr. Alistair Fraser
VP Health at Royal Dutch Shell



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**To get a seat at the table
and have a voice in the room...
We need to master the language of business.**



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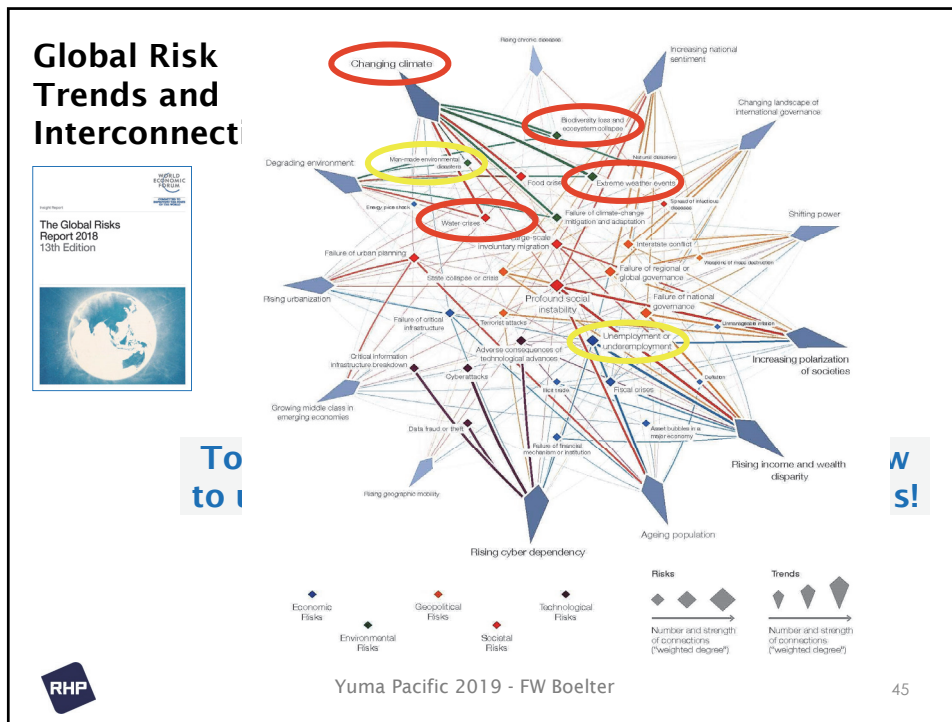
How Far Shall (Can) Our Profession Go to Protect Worker Health

1. Perhaps Total Worker Health fulfills our profession's mission: Protecting Worker Health.
2. How do we meet the challenge in this globalized and nebulous place of work?
3. What additional skills do we need to learn and master beyond our historical core skills?
4. With more than 30% contingent workers in the US labor force today, are they adequately covered by laws and regulations?
5. How can the science of choice help forward looking industrial hygienists build healthy places of work?
6. Are the topics of "residual risk" and "safe" the best lens through which we can provide the greatest value to employers, workers, the public, and the environment?
7. Perhaps challenges can be addressed by mastering risk science: 1) Assessment, 2) Characterization, 3) Communication, 4) Benefit/Cost, and 5) Management.



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Thank you

Total Worker Health fulfills our mission to protect worker health in today's globalized and nebulous place of work.

How will our profession meet the challenge?



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